BY ARLYN PERKEY

FOREST MANAGEMENT UPDATE

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FOR SERVICE FORESTERS & CONSULTANTS

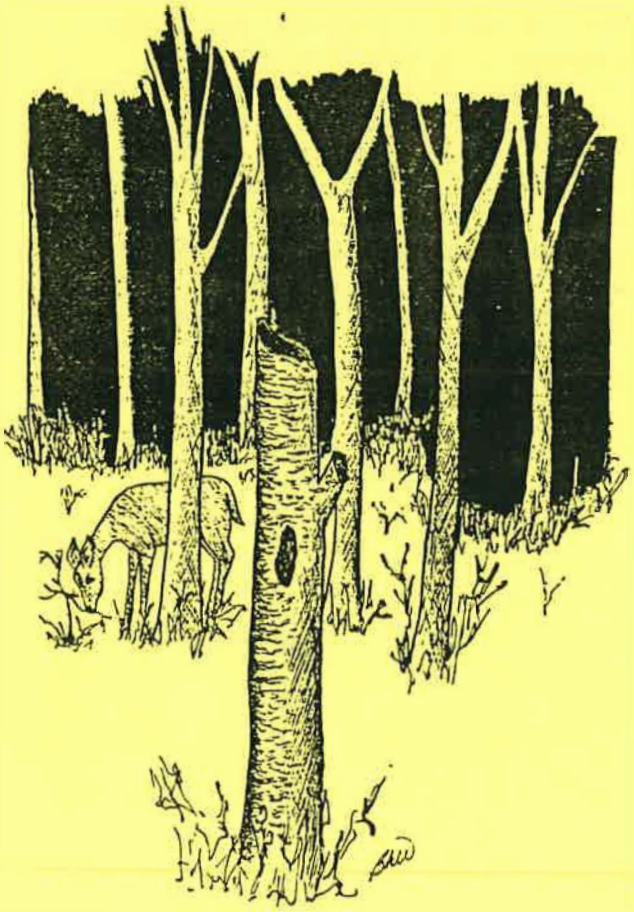
ASSESSING WILDLIFE HABITAT MANAGEMENT OBJECTIVES ON THE PRIVATE NON-INDUSTRIAL FOREST

by

Arlyn W. Perkey

Introduction

Those of us involved with management of the private non-industrial forest must learn how to effectively use our silvicultural knowledge to accomplish non-silvicultural landowner objectives, including wildlife habitat management. The intent of this article is to clarify this need and to stimulate some thought about how to assess wildlife habitat management objectives on the private non-industrial forest.



Sometimes landowners who are hesitant to talk about timber management will readily respond to the opportunity to learn about wildlife management. It is then possible to use the landowner's interest in wildlife as a means of getting him to consider the benefits of forest management on his land. We need to be skilled at demonstrating why timber management activities are the best, and often the only, opportunity to accomplish the wildlife management objective.

Many landowners do not realize they can take specific actions to increase wildlife benefits. Most people assume that if a forest is aesthetically attractive, then it must be good for wildlife. That is part of the reason it is often difficult to motivate people to implement management practices that enhance wildlife habitat.

Although many people will indicate on landowner surveys that wildlife management is an objective, they frequently are unwilling to actively implement practices designed to improve habitat. Therefore, most of the habitat manipulation on private non-industrial land must be accomplished by an indirect means -- usually a timber management activity.

Identifying Landowner Objectives

There are potentially as many landowner objectives as there are landowners, but we can generally categorize them as follows:

1. Maintaining and/or improving the aesthetic qualities of the property.

2. Maintaining and/or improving wildlife habitat.

3. Periodic income.

The relative importance of these objectives varies from landowner to landowner, and often changes over time. However, when a forester initially meets a landowner, it is important that management objectives be promptly identified. By being observant, the forester may find indications of the landowner's attitude toward forest management before conversation even begins.

The landowner's home and vehicle can give some very early indications. There is likely to be a different personality living in a condominium on the lake than in a rural farmhouse. The owner of a pick-up truck with "Farm Use" painted on the door is likely to have an attitude different from that of a person who owns a Cadillac sedan. Driving onto a property and seeing a rifle range with targets indicates that the owner is not likely to be anti-hunting. On the contrary, "NO HUNTING" signs on the property boundary should serve as a reminder to inquire about feelings regarding game management. Birdhouses or feeders in the yard usually indicate someone likes to observe wildlife. Vegetable and flower gardens show an interest in watching things grow. Firewood indicates a probable awareness and acceptance of the use of wood as a raw material, and a potential personal interest in the use of some products from the forest. Garages with a variety of tools may be a sign that someone is interested in working with their hands. They might be willing to do management work themselves, which increases the probability that it will actually get done.

Keep in mind, a few good questions can help clarify landowner attitudes so you will be better able to help develop appropriate objectives. Some examples of important questions are:

1. What is your forest used for?
2. How many people are primary users of the property?
3. Do the people who use the forest have similar backgrounds and interests?
4. How long have you had the property?

5. How did you acquire it?
6. What has been done with it in the time you've owned it? For example, have you cut any trees?
7. Have you received any professional management advice?
8. Do you know other landowners who have had trees harvested on their land?

The forester must assess how knowledgable the landowner is about the range of benefits that might be received from the property, and possible difficulties that may be encountered. Questions like the following can help you obtain such information:

1. Did you know that the number of animals and the variety of species can be influenced by the type of vegetation on the property?

2. Are you aware that management activities which favor one species of wildlife may have an adverse affect on another species?

3. When activities like timber harvesting take place, did you know you may have some control over where roads and other facilities are placed so they can be used for other purposes later (such as hiking and cross country skiing).

4. Do you realize that with management, you may be able to receive periodic income from the property?

It is also important to assess the landowner's tolerance for management activities on the property. Again, ask questions to obtain the following information:

1. If any management activity has been done, what was the reason? If nothing has been done, how does the landowner feel about having some trees cut and logging roads constructed?

2. How large an opening in the woods is the landowner willing to create to meet an objective he feels is important? For example, if he is concerned about wildlife management, will he accept openings up to an acre in size to provide desirable habitat?

3. Is the landowner agreeable to using herbicides on the property to accomplish management work? If spraying is not acceptable, could the herbicide be injected into individual stems instead?

4. Has the landowner ever seen an area treated in the manner you are recommending? If a similar site is available, go look at it together, or at least describe it to him, and see what the landowner's reaction is.

In talking with the landowner, the language used is very important. Do you describe a one-acre area where all the trees have been cut as an opening in the forest, or as a mini-clearcut? You are talking about the same thing, but the connotation associated with the words is entirely different. It is also essential to refrain from using technical terms that are likely to be unknown to the client. For example, instead of asking if it is acceptable to "treat the understory by mist-blowing Round-up", ask if it is all right to "kill vegetation that competes with new seedlings by spraying it with a back-pack sprayer".

Let's review the steps we have gone through in helping to identify landowner objectives. We 1) observed visible indications of what the landowner's attitude is likely to be regarding timber and wildlife management, 2) asked him what type of things he used the land for, 3) described various management practices, and asked him how he felt about them, and 4) mentioned potentially controversial techniques for carrying out those practices, and assessed his reaction.

Documenting Landowner Objectives

As previously mentioned, the forester must adequately inform the landowner of the forest management options available, and assess the landowner's attitude regarding those options and the associated treatment practices. Only then is he ready to suggest appropriate language for landowner objectives.

It is very important that the objectives be documented in clear, concise, "plain English". Try to write objectives that appeal to the individual desires of the landowner so that each time he reads them he will be reminded of the relationship between the management practices and the desired result. This will help maintain commitment to the objective. For example, if the landowner is interested in managing for fox squirrels, instead of stating an objective is to improve wildife habitat, write: the objective for the next 15 years is to improve squirrel habitat by releasing trees with a history of producing good acorn crops. A similiar timber management objective might be: to increase the income-producing potential of the property for the next 15 years by releasing from competition the individual crop trees that have the best potential income-earning power.

To review the steps we've taken in documenting landowner objectives, we have 1) written objectives that accurately reflect the desired results, 2) helped secure the landowner's commitment to accomplishing those results, and 3) provided written documentation of the agreed-upon management practices, with the benefits clearly and concisely identified.

The Follow-up

After all of that sincere effort, how do we respond if during implementation of the management activity the client changes his mind, disregards the advice, and does something we perceive to be detrimental to the forest resources? Our first inclination might be to take it personally and assume he didn't think the advice was sound, or he just didn't like us. That's always a possibility; however, it's more likely that he had a change in circumstances, or someone else managed to present him with a more convincing argument.

Whatever the reason for disregarding the advice, how do we respond to subsequent requests for assistance from this landowner? Naturally, caution must be exercised before investing more time and effort into additional work activities for that individual. However, we must remember that the service we provide is not just to meet the needs of one person, but to meet the needs of society. Sometimes, after our initial advice has been rejected, we can still manage the resource. Following is an example:

> You examine and write a thinning prescription for a 30-acre stand of timber. The timber is marked in accordance with the prescription, and prepared for sale. However, before the sale is advertised, the landowner changes his mind, and decides to sell all the merchantable sawtimber over 12 inches DBH. After it is cut, he is very dissatisfied with the results, and comes back to you for advice, asking, "What do I do now?". Of course, you probably feel like saying, "I told you so" or "How can you even come back into this office?". But, if you can resist the urge to do so, you may be able to make the best of a bad situation. After all, it is the resource and future generations we are benefiting, not just the current landowner. Perhaps a better response would be "That stand is gone, but we can work on getting good regeneration for the next stand. Let's consider treating those residual culls and providing favorable conditions for development of a valuable new stand."

Summary

Silviculturists need to be skilled at using silviculture to accomplish wildlife management objectives. On private non-industrial land, we must: 1) observe preliminary indications of a landowner's attitude regarding forest resource management, 2) confirm or alter those observations by asking pertinent questions, 3) help the landowner write appropriate objectives that secure his commitment to accomplishment, and 4) accept the landowner's decision to implement or reject our recommendations.

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CULTURING CROP TREES IN COMMERCIALLY OPERABLE STANDS

by
Arlyn W. Perkey
and
Neil I. Lamson

The Problem

In the northeastern United States, foresters working with private non-industrial landowners are frequently frustrated when trying to apply both the even-aged and uneven-aged systems on private non-industrial land. Many landowners find the even-aged regeneration practices to be too aesthetically severe. They want to see full-sized trees on most of the area they own. To accomodate that desire, many foresters try to apply some form of uneven-aged management, but are often bogged down by the time-consuming inventory and analysis techniques required to measure stand structure (number of trees per acre by diameter class). Most give up on the Q-factor after one or two attempts to use it.

Stand structure is important in classical uneven-aged management because by regulating it, the forester supposedly accomplishes an even-flow of forest products from the stand on a periodic basis. However, it may not be so important to many small private non-industrial landowners. Perhaps we should design a stand inventory, analysis, and marking system that will accomplish the key objectives of many private non-industrial landowners, and not concern ourselves with the issue of volume regulation on small ownerships. Let's not let our "systems" (even-aged or uneven-aged) keep us from developing techniques that will enable us to efficiently accomplish landowner objectives.

A New Approach

Any new approach designed for use on the private non-industrial forest must facilitate communication of the benefits of our proposed actions to landowners in words they can understand. Although it is acceptable to use terms like "basal area", "stand density", and "board feet/acre" when we communicate with each other, we cannot expect landowners to understand or support our proposals if this is the language we use to explain the benefits of forest management to them. Instead, we should use terms like "number of crop trees/acre", "number of dollars/crop tree", "average number of pounds of mast/acre/year", and "number of den trees/acre" to communicate benefits to our clients. We must also be able to describe the non-timber as well as the timber benefits we can produce. Therefore, we need to realize that a "crop" is not only timber; it may also be acorns, or dogwoods with larger crowns. A crop tree can be a large, straight red oak free of visible defect or an aesthetically attractive dogwood. We must demonstrate our ability to use silvicultural skills to produce wildlife and aesthetic benefits. There is research information available to help describe the benefits of our management if we decide this communication approach is worth trying.

What do you mean: "Culturing Crop Trees?"

Basically, it is selecting the trees in the stand that have the potential to produce the most benefits for the landowner, and then doing whatever will facilitate the production of those benefits. Often, that means harvesting competing trees to release the crop tree. The intensity of release may vary from a "crown touching release" (harvest every tree whose crown touches the crop tree) to a release of only one or two sides of the crop tree. The crop trees may or may not be physically marked, but the decisions regarding which trees will be harvested are based on how the removal of those non-crop trees will affect the crop trees.

Prior to marking, the forester must identify stand specific objectives that can be accomplished or at least influenced by the selection of crop trees. With these objectives in hand, the forester can write crop tree selection criteria that will help accomplish those objectives. The number of crop trees/acre will vary with the forest type and size class, as well as the landowner objectives.

What About Regeneration?

Much of the forest in the northeast is approaching maturity. How do we appropriately apply this crop tree concept in seventy-year-old even-aged stands? We must talk more to private non-industrial landowners about regeneration of the forest. We can't expect landowners who own 30 acres to regenerate their entire property at one time. However, if we explain why it is important to regenerate the forest to species that are desirable crop trees, many of them might will be willing to tolerate establishing and releasing 1/2- to 2-acre patches of regeneration. These patches can be described as the source of tomorrow's crop trees that will produce beauty, mast, dens, and income.

Written Communication with Landowners

If we develop these new inventory, analysis, and marking techniques, what will our written communication to landowners be like? It might read as follows:

September 30, 1987

Oscar Owner
1 Woodland Rd.
Treeland, USA

Dear Oscar,

I enjoyed the opportunity to examine your 16-acre woodlot near Treeland. This letter describes the benefits you may produce by culturing crop trees in accordance with the following stand objectives we developed during my visit last week.

Stand Objectives:

1. Increase the production of mast to improve wildlife habitat. Maintain or create 2 potential den trees/acre.

2. In the 2-acre portion of the stand visible from the trail, retain a species composition of at least 10% red maple to provide attractive fall foliage. Retain large trees over at least 80% of the area.

3. Produce income from the property on approximately a 15-year cycle.

I have evaluated a sample of the crop trees in your woodlot, and made some predictions regarding their potential to produce benefits consistent with your stand management objectives. Column A describes the crop trees that are presently in the stand, and the benefits they are providing. Column B predicts the benefits these crop trees will yield in 15 years if they are not released at this time. Column C predicts the benefits the crop trees will yield in 15 years, if they are released this year.

		Column A		Column B		Column C	
Species	# Crop Trees/Ac.	Current $/Acre	Current Mast*	Unreleased $/Acre	Unreleased Mast*	Released $/Acre	Released Mast*
WO	27	406.89	62.6	432.00	72.9	598.86	102.2
SO	3	62.79	20.4	80.52	24.5	89.61	27.5
BC	11	143.77	-	230.89	-	307.45	-
RM	15	187.50	-	233.55	-	340.35	-
Other	2	25.00	-	31.14	-	45.38	-
	58	825.95	83.0	1008.10	97.4	1381.65	129.7

* (lbs/ac/yr)

WO=White Oak SO=Scarlet Oak BC=Black Cherry RM=Red Maple

Oscar Owner - September 30, 1987
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Releasing the crop trees provides a significant increase in the potential income, and the increased mast production benefits wildlife. It is also important to note that released crop trees will develop larger, healthier crowns that are more attractive, especially on species like red maple which are so brilliant in the fall.

If you would like to accomplish the above release work, I recommend you do so by means of a timber harvest that will remove approximately 85 non-crop trees per acre. These trees may be sold as small sawtimber and firewood. I expect the value of the harvested non-crop trees to be about $300 per acre.

On your property, I also evaluated what should be done to encourage regeneration of the trees needed to produce the benefits that you, and subsequent owners, are likely to desire. The white and scarlet oaks are the most difficult to regenerate, but they produce great benefits. I recommend we concentrate our efforts on facilitating their establishment. I found a 1-acre patch near the Cranesville Road that currently has adequate oak regeneration established. I propose we harvest all the trees in that area at this time, and release the established seedlings so they will develop into desirable crop trees. I also found a 2-acre patch south of the trail that has several trees in rather poor condition. There is not an adequate number of seedling trees to permit us to harvest all of the large trees at this time. Consequently, I recommend that we kill some of the small woody undesirable plants that are preventing regeneration of the oak seedlings we need to favor. We could do this work on these two acres for approximately $100. If we are successful and establish an adequate number of seedlings, we would be able to harvest the remaining larger trees later when your property is ready for additional harvesting in about 15 years.

If you have questions regarding the work I am recommending for your woodlot, please feel free to contact me at the office, or by phone at 777-CROP.

Sincerely,

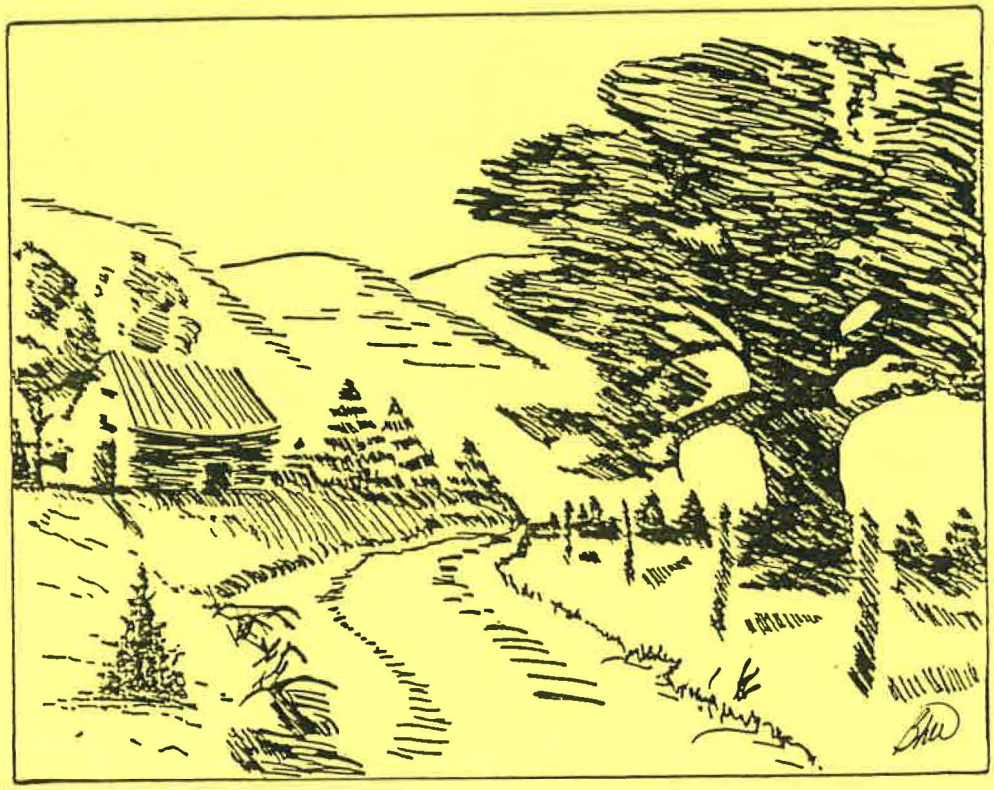
Fred

Fred Forester

We are currently reviewing available research, and developing inventory and analysis techniques that will enable us to provide the type of information found in this letter. The raw data for the above stand came from a demonstration area we are currently working on in Maryland.

At this point, we'd like to ask for your input. Are we going in the right direction? Let your mind wander down the road in the picture below, and think about your experiences with private non-industrial landowners you have assisted. Could they relate well to the crop tree concept previously discussed? Do you think the description of benefits as shown in the Oscar Owner letter would be understandable to them? If not, what do you suggest?

We appreciate your thoughts and welcome any comments you care to offer. Please use the form on the next page for your response and return it to the attention of Arlyn Perkey at P. O. Box 4360, Morgantown, WV 26505.



Questionnaire

Does this concept of culturing crop trees in commercially operable stands sound reasonable to you (Yes/No)? _____

Do you think it has application on the private non-industrial forest (Yes/No)? _____

Is the information contained in the Oscar Owner letter a good example of effective communication to landowners (Yes/No)? _____

Do you feel this concept (including patch regeneration) will be acceptable to many private non-industrial landowners (Yes/No)? _____

If not, what do you suggest? _____

_____

_____

_____

Additional Comments: _____

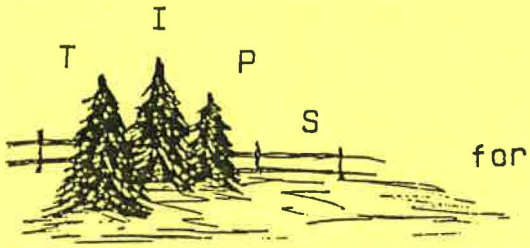
_____

_____

Your Name and Address: _____

_____

_____



for the BACKYARD SILVICULTURIST. . .

In our last issue, we introduced this new section which is devoted to those of you who are interested in increasing your skills in applying "backyard silviculture". Tip #1, Facilitating the Establishment of Den Trees, brought an immediate response which we would like to share with all of our readers. Our thanks to Rexford Baker for submission of TIP #3, which follows.

TIP #3:

LABELING DEN TREES

"Perhaps for each den tree established, a sign is needed to remind us, or anyone else, 10 years down the road, not to remove the tree as cull. I buy aluminum flashing at the hardware store in 5"x7" pieces. Because there is some type of coating on them, I rub it off with course steel wool. I next cut the pieces in half or quarters (the latter fit in the pocket of my vest). I also carry a few 1" aluminum nails. When I wish to record some type of information, I write it on the aluminum with grease pencil (in cold weather you must warm the tag with one hand while writing with the other). If you don't normally carry an ax, then you must carry something to pound the nail in with. Rocks always bend the nail over, so I carry a small brass hammer in a back pocket. I don't pound the nail all the way in. I have visited trees tagged this way 5 years later, and they look like they were just tagged the day before. This method works much better than using tube paint."

from: Rexford V N Baker
Consulting Forester
316 Oxford Street
Auburn, MA 01501

Tip #4:

The following tables can be used to help a landowner predict future mast yields from oak trees growing in his backyard. For example, let's assume your client has a 60-year-old red oak tree with a DBH of 14 inches. If the point basal area (measure of density around the tree) is 80, then according to Table 1, the diameter of the red oak 10 years from now will be approximately 15.4 inches. Looking at Table 2, we see that the amount of mast the red oak tree will produce 10 years from now will be somewhere between 6.8 and 10.1 pounds of mast per year. We can arrive at a more precise figure by doing the following interpolation:

16-14= 2 15.4-14= 1.4 10.1-6.8= 3.3

$$\frac{1.4}{2} = \frac{X}{3.3}$$

$$2X = (1.4)\ (3.3)$$

$$2X = 4.62$$

$$X = 2.31 \text{ lbs.}$$

Mast production for a 15.4 DBH red oak is:

6.8 + 2.31 = 9.11 lbs./tree/year

If the red oak crop tree is released, and the point basal area is reduced to 40, the tables can be used to determine the anticipated increase in mast production:

16-14= 2 15.8-14= 1.8 10.1-6.8= 3.3

$$\frac{1.8}{2} = \frac{X}{3.3}$$

$$2X = (1.8)\ (3.3)$$

$$2X = 5.94$$

$$X = 2.97$$

Mast production after release of red oak is:

6.8 + 2.97 = 9.77 lbs./tree/year

Table 1

Predicted Crop Tree DBH in 10 Years
for Central Hardwoods 1/

Point Basal Area	Age 50			Age 60			Age 70			Age 80		
	Diameter at Breast Height											
	10	12	14	12	14	16	14	16	18	16	18	20
40	11.7	14.0	16.3	13.6	15.8	18.1	15.5	17.7	19.9	17.5	19.6	21.7
60	11.5	13.8	16.1	13.4	15.6	17.9	15.3	17.5	19.7	17.3	19.4	21.5
80	11.3	13.6	15.9	13.2	15.4	17.7	15.1	17.3	19.5	17.1	19.2	21.3
100	11.1	13.4	15.7	13.0	15.2	17.5	14.9	17.1	19.3	16.9	19.0	21.1

Table 2

Average Pounds of Mast per Tree per Year 2/

Species	Diameter at Breast Height					
	10	12	14	16	18	20
Red Oak.	.0	3.2	6.8	10.1	12.9	15.0
White Oak	.7	1.3	2.7	4.6	6.7	8.8
Black Oak	1.0	1.6	2.2	2.8	3.4	4.0
Ches. Oak	.9	3.0	4.8	6.4	7.7	8.8
Scar. Oak	2.2	3.7	5.9	8.5	11.2	13.9

1/ Gingrich, Samuel F., Stocking, Growth, and Yield of Oak Stands

2/ Downs, Albert A., Trees and Food from Acorns, Yearbook of Agriculture, 1949

SHARING INFORMATION

We invite participation in the development of future issues of FOREST MANAGEMENT UPDATE. The intent of this periodical is to provide a means of technical communication for professional foresters managing the private non-industrial forests in the Northeastern Area. The majority of articles printed in the Update address technical forestry subjects of interest to readers in a reasonably broad geographic area. If any of our subscribers would like to submit articles for publication, please feel free to contact me at the address and phone number listed below.

FOREST MANAGEMENT UPDATE

<< A TECHNOLOGY TRANSFER PERIODICAL >>

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